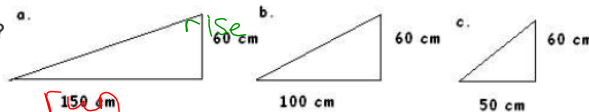


MPM1D	Slope	Date: _____
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1. Which of these ramps is the steepest?
Be ready to justify your answer.



The slope of a line is a measure of a line's steepness.

The formula for slope is
Where m is the symbol for slope.

$$m = \frac{\text{rise}}{\text{run}}$$

2. Find the slope of each of the ramps in question 1 to prove this formula works.

$$m_a = \frac{60}{150} = \frac{6}{15} = \left(\frac{2}{5}\right) = 0.4$$

$$m_b = \frac{60}{100} = 0.6$$

$$m_c = \frac{60}{50} = 1.2$$

c is steepest because it is BIGGEST

3. Find the slope of each of the following line segments.

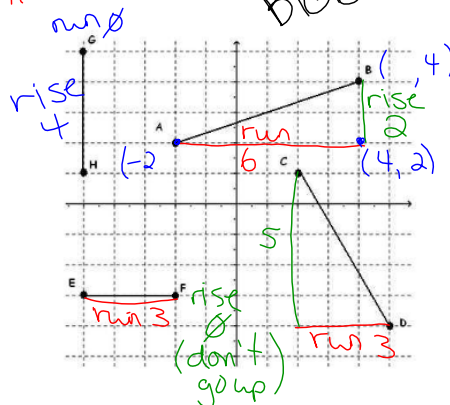
Remember: Lines sloping up to right = positive
Lines sloping down to the right = negative

$$m_{AB} = \frac{2}{6} = \frac{1}{3}$$

$$m_{CD} = -\frac{5}{3}$$

$$m_{EF} = \frac{0}{3} = 0$$

$$m_{GH} = \frac{4}{0} = \text{UNDEFINED}$$



4. What if you were asked to find the slope of line segment AB with the same end points as above A(-2, 2) and B(4, 4) without graphing. Is there a formula you could create?

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\begin{matrix} x_2, y_2 \\ A(-2, 2) \\ B(4, 4) \\ x_1, y_1 \end{matrix}$$

$$m = \frac{2 - 4}{-2 - 4}$$

$$\begin{aligned} m &= \frac{-2}{-6} \\ &= \frac{2}{6} \\ &= \frac{1}{3} \end{aligned}$$

5. Try your formula for all lines segments in question 3 to see if it works.

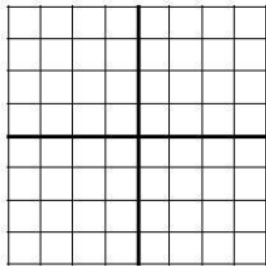
$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{\Delta y}{\Delta x} \quad \begin{array}{l} \text{"y to the} \\ \text{sky"} \\ \text{y is on top} \end{array}$$

$$\begin{array}{r} C(2, 1) \\ D(5, -4) \\ \hline 1 - 3 \quad 5 \end{array} \quad m = \frac{5}{-3}$$

6. A line segment has an endpoint of A(-3, 3) and a slope $m = \frac{-4}{5}$, what is its other endpoint?

Graphically:



Algebraically: